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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/582,563	06/12/2006	Hiroyuki Nakata	NGB-40647	1588

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EXAMINER

NGUYEN, HUNG D

ART UNIT	PAPER NUMBER
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3742

NOTIFICATION DATE	DELIVERY MODE
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04/19/2010

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/582,563	Applicant(s) NAKATA ET AL.	
	Examiner HUNG NGUYEN	Art Unit 3742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 January 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-7 and 9-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-7 and 9-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/4/2010 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 1-2, 6-7 and 11-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uesono et al. (JP Pub. 2002-205169) in view of Mori (US Pat. 4,445,022) (both previously cited) and Dahlstrom et al. (UP Pat. 4,076,131) (newly cited).**

4. Regarding claims 1 and 6, Uesono et al. discloses a welding systems and a welding method including: a wire feeding unit WM (Fig. 2) which feeds a welding wire 1 (Fig. 2) to a welding torch 4 (Fig. 2); an actuator RM (Fig. 2) which holds the welding torch 4 (Fig. 2) and moves the welding torch; a controller RC (Fig. 2) which has a position control system and drive-controls the actuator RM (Fig. 2); and a welding

Art Unit: 3742

power supply PS (Fig. 2) unit which applies weld output between a workpiece 2 (Fig. 2) and the welding wire 1 (Fig. 2), wherein the welding torch is moved by the actuator in a direction separating from the workpiece thereby to control the velocity of the welding wire for the workpiece.

Uesono et al. does not disclose the controller includes, separately from the position control system, a dedicated separation control system which moves the actuator only in the direction where the welding torch is separated from the workpiece; and the dedicated separation control system is always connected to the position control system, and a velocity command relating to a welding torch pull-up operation is outputted to the dedicated separation control system only when the welding torch is moved in the direction separating from the workpiece.

Mori discloses a controller includes, separately from the position control system 40 (Fig. 5), a dedicated separation control system 44 (Fig. 5) which moves the actuator (Fig. 5) in the direction where the welding torch is separated from the workpiece 22 (Fig. 5); and the dedicated separation control system 44 (Fig. 5) is always connected to the position control system 40 (Fig. 5). Mori only discloses a velocity command relating to a welding torch movement operation in angular displacement is outputted to the dedicated separation control system only when the welding torch is moved in the direction separating from the workpiece (Col. 8, Lines 31-46). Mori is silent about the direction of the pull-up operation. Dahlstrom et al. discloses an industrial robot 10 (Fig. 1) having five degrees of freedom movement (Abstract; Col. 1, Lines 51 -56) wherein the robot 10 (Fig. 1) is suitably programmed so the robot arm 14 (Fig. 1) is moved manually to the

Art Unit: 3742

desired position. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Uesono et al., the controller includes, separately from the position control system, a dedicated separation control system which moves the actuator in the direction where the welding torch is separated from the workpiece; and the dedicated separation control system is always connected to the position control system, as taught by Mori, for the purpose of having a drive control system for moving the robot arm, and to program the robot (well known in the art) to move the actuator only in the direction or any direction/motion, as taught by Dahlstrom et al., for the purpose teaching the robot to perform the operation.

5. Regarding claims 2 and 7, Uesono et al. discloses substantially all features of the claimed invention as set forth above **except** the dedicated separation control system performs feedforward control. Mori discloses the dedicated separation control system 44 (Fig. 5) performs feedforward control (Fig. 7, Col. 6, Lines 48-64).

6. Regarding claims 11 and 14, Uesono et al. further discloses the welding torch 4 (Fig. 7) is moved by the actuator in the direction separating from the workpiece 2 (Fig. 7) while the welding 1 (Fig. 7) is fed toward the workpiece (Par. 22-23).

7. Regarding claims 12 and 15, Uesono et al. discloses the controller RC (Fig. 6) continues to output the velocity command MC (Fig. 6) relating to the welding torch movement operation to the separation control system RM (Fig. 6) until the welding torch is moved in a predetermined height after the welding wire contacts the workpiece (Par. 22-23) **except** for the dedicated separation control system. Mori discloses the

Art Unit: 3742

dedicated separation control system 44 (Fig. 5) for the torch movement operation in angular displacement (Col. 8, Lines 31-46).

8. Regarding claims 13 and 16, Uesono et al. discloses substantially all features of the claimed invention as set forth above **except** for the velocity command relating to the welding torch pull-up operation outputted to the dedicated separation control system is separate from a velocity command in a usual operation outputted to the position control system. Mori discloses the velocity command relating to the welding torch movement operation outputted to the dedicated separation control system is separate from a velocity command in a usual operation outputted to the position control system (Col. 8, Lines 31-46). Mori is silent about the direction of the pull-up operation. Dahlstrom et al. discloses an industrial robot 10 (Fig. 1) having five degrees of freedom movement (Abstract; Col. 1, Lines 51 -56) wherein the robot 10 (Fig. 1) is suitably programmed so the robot arm 14 (Fig. 1) is moved manually to the desired position

9. Claims 4-5 and 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uesono et al. (JP Pub. 2002-205169) in view of Mori (US Pat. 4,445,022), Dahlstrom et al. (UP Pat. 4,076,131) and further view of Hashimoto et al. (JP 11282540) (previously cited).

10. Regarding claims 4 and 9, Uesono/Mori/Dahlstrom disclose substantially all features of the claimed invention as set forth above **except** for a method of preventing erroneous collision detection within a multi-articulated robot driven through a reduction gear by a motor utilizing the welding system comprising the steps of: sensor-less detecting external force due to collision by subtracting a kinetic torque obtained by an

Art Unit: 3742

inverse kinetic calculation of a robot from a torque outputted to the reduction gear by the motor; judging that an arm has received the external force in case that the detected value of the external force is greater than a predetermined threshold; and increasing the threshold for detection of collision to lower collision detecting sensibility in case that a command acceleration of the robot operation is greater than a predetermined value.

Hashimoto et al. discloses a method of preventing collision comprising the steps of: sensor-less detecting external force due to collision by subtracting a kinetic torque obtained by an inverse kinetic calculation of a robot from a torque outputted to the reduction gear by the motor (Par. 34); judging that an arm has received the external force in case that the detected value of the external force is greater than a predetermined threshold (Par. 35-36); and increasing the threshold for detection of collision to lower collision detecting sensibility in case that a command acceleration of the robot operation is greater than a predetermined value (Par. 39 and 52-54). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify in Uesono/Mori/Dahlstrom, method of preventing erroneous collision detection within a multi-articulated robot driven through a reduction gear by a motor utilizing the welding system comprising the steps of: sensor-less detecting external force due to collision by subtracting a kinetic torque obtained by an inverse kinetic calculation of a robot from a torque outputted to the reduction gear by the motor; judging that an arm has received the external force in case that the detected value of the external force is greater than a predetermined threshold; and increasing the threshold for detection of collision to lower collision detecting sensibility in case that a command

Art Unit: 3742

acceleration of the robot operation is greater than a predetermined value, as taught by Hashimoto et al. for the purpose of having a collision judgment processing of robotic control.

11. Regarding claims 5 and 10, Uesono/Mori/Dahlstrom disclose substantially all features of the claimed invention as set forth above **except** for the threshold for detection of collision is increased, and this state where the threshold is increased is kept for the predetermined time in case that the command acceleration of the robot operation is greater than the predetermined value. Hashimoto et al. discloses the threshold for detection of collision is increased, and this state where the threshold is increased is kept for the predetermined time in case that the command acceleration of the robot operation is greater than the predetermined value (Par. 52-54).

12. Applicant's arguments with respect to claims 1-2, 4-7 and 9-16 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HUNG NGUYEN whose telephone number is (571)270-7828. The examiner can normally be reached on Monday-Friday, 9M-6PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tu Hoang can be reached on (571)272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3742

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/HUNG NGUYEN/
Examiner, Art Unit 3742
4/10/2010

/Quang T Van/
Primary Examiner, Art Unit 3742